Inductive Identification System CIS3A-Mini

- **One of the smallest plug-in read heads**
- **Interface adapter for fitting on the DIN rail in the control cabinet**
- **Miniature data carrier, diameter 10 x 4 mm**
- **Read distance maximum 6.5 mm (static, on installation in non-metallic material)**
- **Data carrier memory capacity 116 bytes E²PROM read/write**
- **Easy connection of the read-only adapter to I/O on any control system via 4-bit parallel interface (24 V), max. 4 bytes of the data carrier usable via parallel interface**
- **Read/write interface adapter with serial interface RS232 or RS422, complete memory of 116 bytes usable via serial interface**

The innovative identification system CIS3A-Mini is used if there is very little space to fit a data carrier to the product to be identified, or if there is very little space available for the read head.

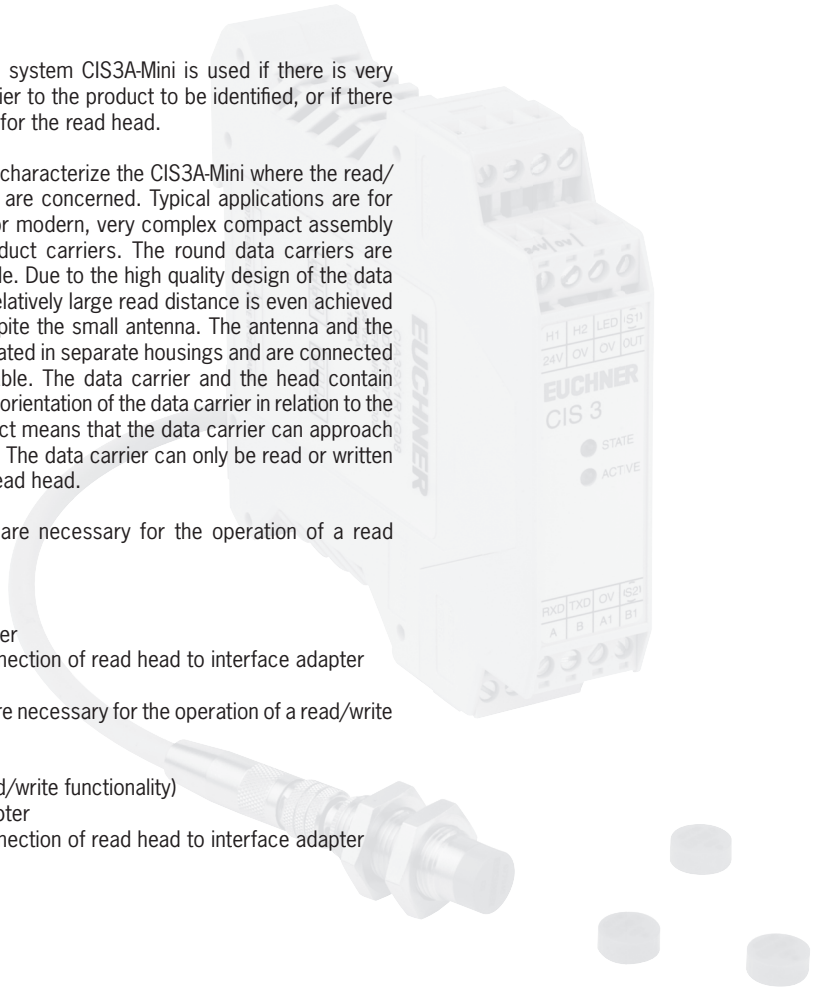
Incredibly small dimensions characterize the CIS3A-Mini where the read/write head and data carrier are concerned. Typical applications are for example tool identification or modern, very complex compact assembly installations with small product carriers. The round data carriers are bonded in a countersunk hole. Due to the high quality design of the data carrier with ferrite core, a relatively large read distance is even achieved on installation in metal, despite the small antenna. The antenna and the interface electronics are located in separate housings and are connected via a special connection cable. The data carrier and the head contain round-shaped antennae. The orientation of the data carrier in relation to the head is unimportant. This fact means that the data carrier can only be read or written if it is static in front of the read head.

The following components are necessary for the operation of a read station:

- Read head
- Read-only interface adapter
- Connection cable for connection of read head to interface adapter

The following components are necessary for the operation of a read/write station:

- Read head (here with read/write functionality)
- Read/write interface adapter
- Connection cable for connection of read head to interface adapter



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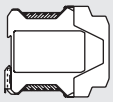
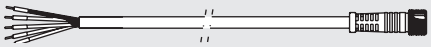
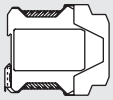
Selection table for identification system CIS3A-Mini

	Interface adapter	Connection cable	Read/write head	Data carrier
Read only	Parallel interface CIA3PLG08  Page 34	 Page 40	Read/write head CIT3ASX1N12ST Page 38	CIS3AP10D05KH01K... Page 39
Read / write	Serial interface CIA3SX1R1G08  Page 36			

Possible combinations for CIS3A-Mini components

To give you a quick overview of which CIS3A-Mini components can be combined with each other, there is a combinations table for each read head. The table will answer the following questions:

- Which data carrier can be read by the selected read head?
- What is the operating distance of this combination?

Key to symbols	L 6.5	Combination possible, max. read distance 6.5 mm
	S 6	Combination possible, max. write distance 6 mm
		Combination not permissible

Identification system CIS3A-Mini

Read/write station	Data carriers
	CIS3AP10D05KH01K... All items
Interface adapter **CIA3...** All items with read/write head **CIT3ASX1N12ST** 077 940	L 6.5 S 6

Read-only interface adapter CIA3PL1G08

- **Parallel interface**
- **In combination with read head CIT3ASX1N12ST**
- **DIN rail mounting**

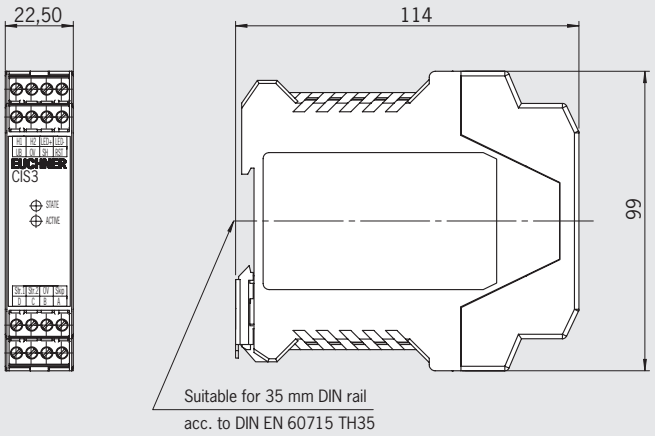
For possible combinations see page 33

Attention:

- The connection cable to the control system is allowed to be max. 15 m long.
- On the usage of a screened cable the connection cable to the read head is allowed to be max. 15 m long.
- It is only ever possible to connect 1 read head per interface adapter.

Interface adapter CIA3PL1G08

Dimension drawing



Pin assignment power supply and interface

Designation	Description
0V/GND	Ground, DC 0 V
24 V/U_B	Power supply, DC 24 V
A	Output data wire A
B	Output data wire B
C	Output data wire C
D	Output data wire D
SKIP	Input data clock
STROBE 1	Output data carrier active
RST	Input RESET

Pin assignment read head

Designation	Description	Wire color
H1	Read head antenna	BN
H2	Read head antenna	WH
LED +	Read head LED	YE
LED -	Read head LED	GN
SH	Read head screen	BK

Ordering table

Series	Interface	Order no. / item
Read-only adapter for **CIS3A-Mini**	**Parallel**	**091 875** CIA3PL1G08

Subject to technical modifications; no responsibility is accepted for the accuracy of this information.

Technical data read-only interface adapter CIA3PL1G08

Parameter	Value min.	Value typ.	Value max.	Unit
Housing material		Plastic		
Weight		0.12		kg
Ambient temperature at U_B = DC 24 V	0	-	+55	°C
Degree of protection according to EN 60529		IP20		
Mounting		35 mm DIN rail acc. to DIN EN 60715 TH35		
Connection type		Plug-in screw terminals		
Cable length to control system	-	-	15	m
Cable length to read head	-	-	15	
Operating voltage U_B (regulated, residual ripple < 5 %)	20	24	28	V DC
Current consumption I_B (without load current)	-	65	100 [1]	mA
Interface/data transfer				
Interface to I/O on a control system		4-bit parallel, binary coded via HIGH/LOW level		
Load current per output I_A (push-pull)	-	-	30	mA
Output voltage U_A				
A, B, C, D, STROBE = 1 (HIGH level)	U_B - 3	-	U_B	V DC
A, B, C, D, STROBE = 0 (LOW level)	0	-	2	
Input voltage U_E				
SKIP = 1 (HIGH level)	15	-	U_B	V DC
SKIP = 0 (LOW level)	0	-	2	
Input resistance R_i (RESET input and SKIP input)	-	4.5	-	kOhm
LED indication		Green: Ready (in operation) Yellow: Data carrier active [2]		

1) Continuous current in operation.

2) The LED illuminates yellow if there is a functional data carrier in the operating distance in front of the read head.

Read/write interface adapter CIA3SX1R1G08

- **Serial interface RS232/RS422**
- **In combination with read head CIT3ASX1N12ST**
- **DIN rail mounting**

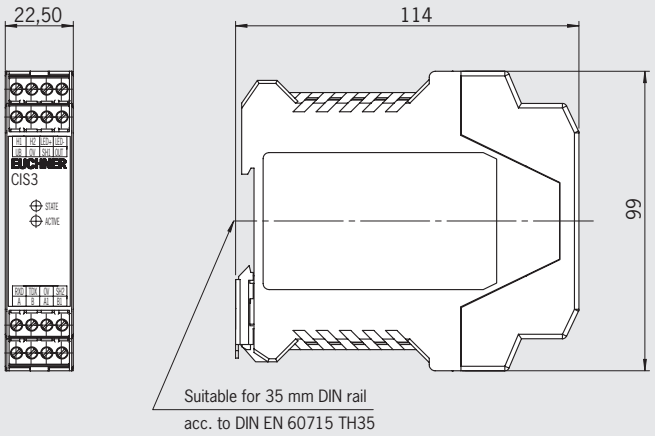
For possible combinations see page 33

Serial interface
The individual commands for reading and writing the data carrier are in accordance with the common 3964R protocol and are described in the EUCHNER CIS3 system manual (order no. 084 727).
For data carrier programming away from the system, a convenient WINDOWS®-compatible PC software application is available (Software Transponder Coding, see page 41).

Attention:
- On the usage of a screened cable the connection cable for the serial interface is allowed to be max. 5 m long for RS232 and max. 1000 m long for RS422.
- On the usage of a screened cable the connection cable to the read/write head is allowed to be max. 15 m long.
- It is only ever possible to connect 1 read head per interface adapter.

Interface adapter CIA3SX1R1G08

Dimension drawing



Pin assignment

Designation	Description	
0V/GND	Ground, DC 0 V	
24 V/U_B	Power supply, DC 24 V	
TxD	Serial interface transmit	RS232
RxD	Serial interface receive	
A/TxD+	Serial interface transmit +	RS422
B/TxD-	Serial interface transmit -	
A1/RxD+	Serial interface receive +	
B1/RxD-	Serial interface receive -	
OUT	Output data carrier active, 24 V	
SH2	Screen data wire	

Pin assignment read head

Designation	Description	Wire color
H1	Read head antenna	BN
H2	Read head antenna	WH
LED +	Read head LED	YE
LED -	Read head LED	GN
SH1	Read head screen	BK

Ordering table

Series	Interface	Order no. / item
Read/write interface adapter for **CIS3A-Mini**	**Serial RS232 / RS422**	**077 910** CIA3SX1R1G08

Subject to technical modifications; no responsibility is accepted for the accuracy of this information.

Technical data read/write interface adapter CIA3SX1R1G08

Parameter	Value			Unit
	min.	typ.	max.	
Housing material		Plastic		
Weight		0.12		kg
Ambient temperature at U_B = DC 24 V	0	-	+55	°C
Degree of protection according to EN 60529		IP20		
Mounting		35 mm DIN rail acc. to DIN EN 60715 TH35		
Connection type		Plug-in screw terminals		
Operating voltage U_B (regulated, residual ripple < 5 %)	20	24	28	V DC
Current consumption I_B (without load current)	-	65	100	mA
Interface/data transfer				
Interface to the PC or to the control system		Serial RS232 / RS422 (can be changed using rotary switch)		
Transfer protocol		3964R		
Data transfer rate (selectable with DIP switch)	9.6	-	28.8	kbaud
Data format		1 start bit, 8 data bits, 1 parity bit (even parity), 1 stop bit		
Cable length RS232 interface	-	-	5	m
Cable length RS422 interface	-	-	1000	
LED indication		Green: Ready (in operation) Yellow: Data carrier active [1)]		

1) The LED illuminates yellow if there is a functional data carrier in the operating distance in front of the read/write head.

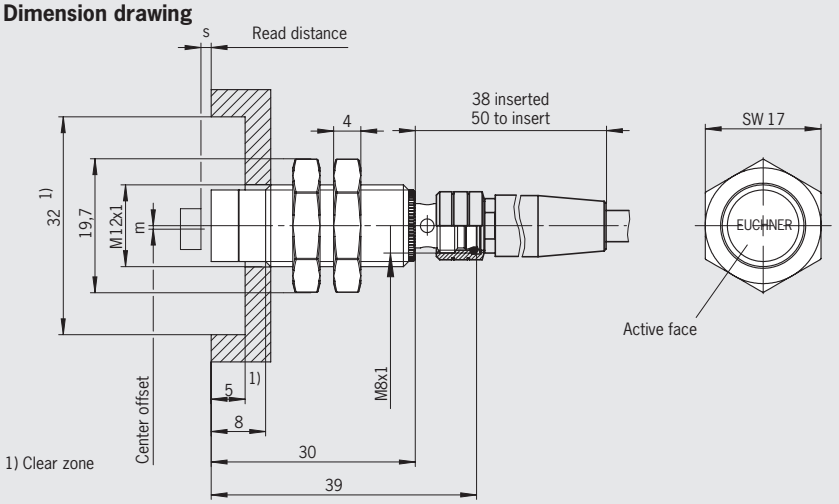
Read/write head CIT3ASX1N12ST

- **Use with interface adapter CIA3...**
- **Cylindrical design M12**
- **M8 plug connector**
- **Axial connection**

For possible combinations see page 33

Read/write head CIT3ASX1N12ST
M8 plug, 4-pin, axial connection

Dimension drawing

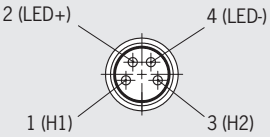


For connection cable see page 40

Note
The read head CIT3ASX1N12ST has
- Read-only functionality in combination with the read-only interface adapter with parallel interface
- Read/write functionality in combination with the read/write interface adapter with serial interface

Attention:
On the usage of a screened cable the connection cable to the interface adapter is allowed to be max. 15 m long.

Pin assignment



The screen on the connection cable is connected to the read/write head's housing via the knurled nut on the M8 plug connector.

View on the connection side of the read head

Pin	Designation	Description	Wire color
1	H1	Antenna H1	BN
2	LED +	LED connection +	YE
3	H2	Antenna H2	WH
4	LED -	LED connection -	GN
-		Screen	BK

Technical data

Parameter	Value min.	Value typ.	Value max.	Unit
Housing material	Brass (CuZn) nickel-plated			
Weight	0.02			kg
Degree of protection according to EN 60529	IP65			
Ambient temperature	-25	-	+50	°C
Type of installation	Non-flush			

Ordering table

Series	Use	Connection	Order no. / item
Read/write head for **CIS3A-Mini**	With interface adapter CIA3	M8 plug connector **axial connection**	**077 940** CIT3ASX1N12ST

Subject to technical modifications; no responsibility is accepted for the accuracy of this information.

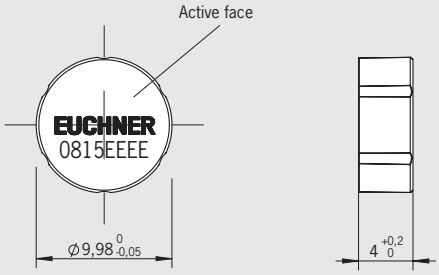
Data carrier CIS3AP10D05KH01K...

- **Cylindrical design ∅ 10 mm**
- **Unprogrammed or programmed**

Data carrier CIS3AP10D05KH01K...

For possible combinations see page 33

Dimension drawing



Mounting instructions

For fastening use e.g. two-component epoxy resin adhesive.

Programming

The data carrier can be written (programmed) for read-only operation with a maximum of 8 hexadecimal digits (value from 0_{hex} to F_{hex}) on customer request. Standard filler digit after the customer-specific defined digits is E_{hex}.

The housing is permanently laser marked with the digits programmed (not including filler digits) in hexadecimal notation.

Technical data

Parameter	Value min.	Value typ.	Value max.	Unit
Memory capacity (read/write)	-	116	-	bytes
Housing material		Plastic PPS		
Weight		0.001		kg
Degree of protection according to EN 60529		IP67		
Ambient temperature	-25	-	+70	°C
Type of installation		Bonded, flush (also in metal)		
Memory organization Write Read		Only possible in 4-byte blocks Possible byte by byte		
Operating parameters on reading using read/write head CIT3ASX1N12ST and interface adapter CIA3PL1G08 or CIA3SX1R1G08				
Read distance s_L for non-metallic environment	0	3	6.5	mm
Read distance s_L on flush installation in iron	0	3	6	
Read distance s_L on flush installation in aluminum	0	3	5	
Center offset m_L (for s_L = 3 mm)	-	-	± 2.5	
Number of read cycles		Not limited		
Operating parameters on writing using read/write head CIT3ASX1N12ST and interface adapter CIA3SX1R1G08				
Write distance s_S for non-metallic environment	0	3	6	mm
Write distance s_S on flush installation in iron	0	3	5.5	
Write distance s_S on flush installation in aluminum	0	3	4.5	
Center offset m_S (for s_S = 3 mm)	-	-	± 2	
Number of write cycles	100,000	-	-	cycles

Ordering table

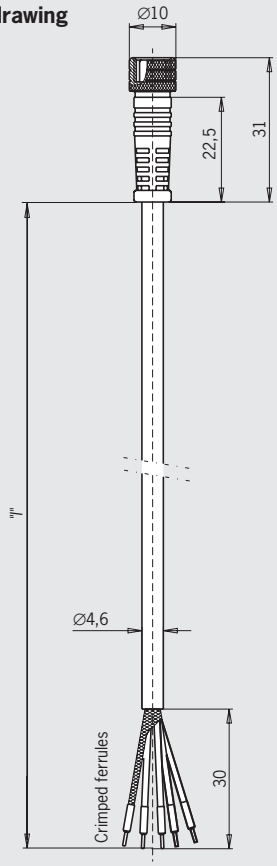
Series	Design	Version	Order no. / item
Data carrier for **CIS3A-Mini**	Cylindrical ∅ 10 mm	Unprogrammed	**077 785** CIS3AP10D05KH01K
		Programmed	**092 320** CIS3AP10D05KH01K-P

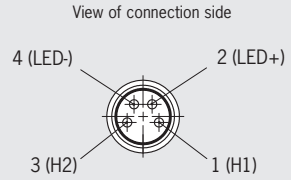
Connection cables and documentation

▶ **Screened connection cable for read/ write head CIT3ASX1N12ST**

For read/write head CIT3ASX1N12ST
M8 socket, 4-pin

Dimension drawing





1 = BN	▶	H1
2 = YE	▶	LED +
3 = WH	▶	H2
4 = GN	▶	LED
BK	▶	Screen

The screen on the connection cable is connected to the read head's housing via the knurled nut on the M8 plug connector.

Technical data

Parameter	Value min.	Value typ.	Value max.	Unit
Plug connectors	4-pin M8 female plug, straight			
Connection type	Screw terminal, knurled nut electrically connected to cable screen			
Conductor cross-section	4 x 0.25 screened			mm²
Material, outer sheath	PVC			

Ordering table

Plug connectors	Cable type	Cable length l [m]	Order no / item
Straight	**V** Cable PVC	2	**084 641** C-M08F04-04X025PV02,0-ES-084641
		5	**084 642** C-M08F04-04X025PV05,0-ES-084642
		10	**084 643** C-M08F04-04X025PV10,0-ES-084643
		15	**084 644** C-M08F04-04X025PV15,0-ES-084644

▶ **User manual CIS3A-Mini**

Ordering table

Series	Comment	Order no.
Manual Inductive Identification System CIS3A-Mini	PDF file as download [1]	**084 727**

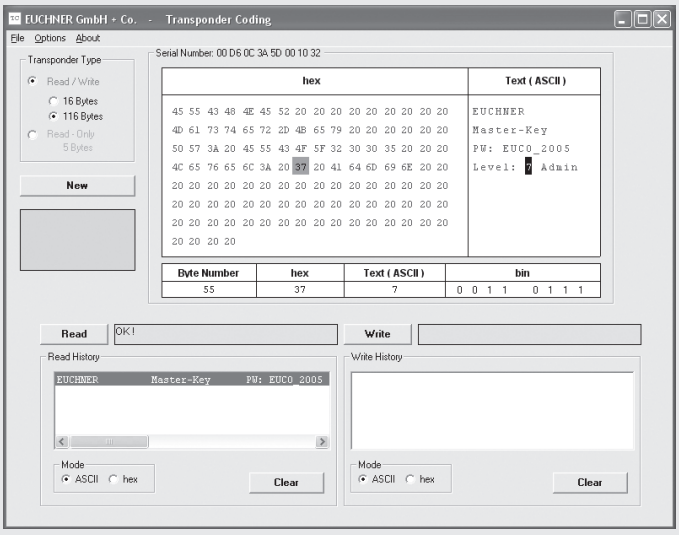
1) Downloads available at www.euchner.de in Download/Manuals/Automation/Identification systems.

Subject to technical modifications; no responsibility is accepted for the accuracy of this information.

Transponder Coding (TC)

- **Software for writing the data carriers**
- **In conjunction with read/write stations with serial RS232 interface**

Transponder Coding (TC)



Description

The Transponder Coding (TC) software is an ASCII/hex editor that can be used to read and write the data carrier on the PC.
The software is used in conjunction with a read/write station with serial interface.

Overview

- Display of the data in ASCII and in hex notation
- Byte-wise editing of the data
- Storage of the data as ASCII or hex file on PC

System requirements

- Operating system: Microsoft Windows® 98/ ME/NT/2000/XP/Vista/7
- Processor: from Pentium 2
- Available memory: min. 64 MB
- Hard disk space for the installation: approx. 20 MB
- Interface: serial

Ordering table

Designation	Comment	Order no. / item
Software Transponder Coding	On CD	**067 190**

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